

# COMBUSTIBILITY BEHAVIOUR OF INSULATION PRODUCTS

## ► SMOULDERING AND CONTINUOUS GLOWING

Smouldering and continuous glowing are slow internal combustion processes that can lead to fires breaking out some distance and time away from the original source of ignition.

There is no evidence that PU insulation smoulders or shows continuous glowing. For this to occur an open porous material is necessary, which is not the case for PU insulation, but it is for many natural and synthetic materials, e.g. wood shavings, cotton, wool, etc. or a number of mineral wool products.

Until now, the Euroclass system does not consider the smouldering or continuous glowing potential of a product, but developments are underway. They will become a criterion in the reaction to fire classification because of a special request of some national regulators. A new test is in development. Some countries, e.g. Germany and Austria, consider this criterion relevant for fire safety. EU Member states are allowed to require additional national tests and rules for CE marked products as long as there is no EU harmonised solution. PU insulation products do not need to be tested in the current national tests as they are considered “deemed to satisfy”. In reality, no incidents involving PU have been observed.

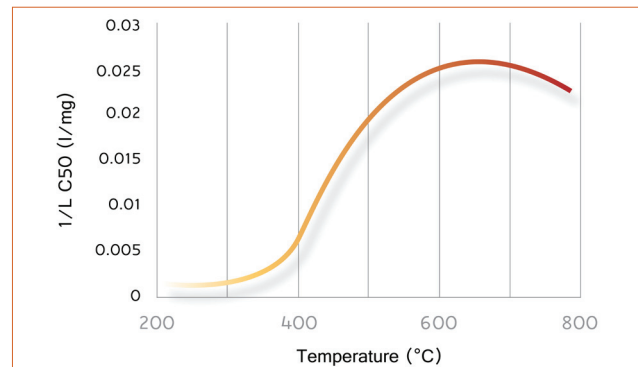


Figure 1: Toxic potency of a rigid polyurethane product depending on temperature

## ► SMOKE AND SMOKE TOXICITY

Smoke is an additional classification to each of the fire classes A2 to D in the Euroclassification system for reaction to fire. PU insulation products with CE mark carry a fire and a smoke class (see [Reaction to fire classification](#) in the chapter [European fire standards and national legislation](#)). PU insulation products meet the smoke requirements set by regulations for the applications they are used in.

In addition, it has been possible to obtain wider approvals on the basis of FSE. Some examples are published [1], however, since then more approvals have been achieved.

Smoke toxicity is not part of the Euroclassification system, but it was part of the FSE assessments for special approvals, mentioned in the above paragraph (see also section: [Fire safety in buildings](#)).

There can be some further national limited smoke